(15) also shows that the speed of the non-uniformly moving point would always decrease but not be zero. From (6) it follows, since $K = F$, that in an indefinitely great period of time this point U, as well as W, would make an indefinitely great number of revolutions about the circle.

The law of areas for hyperbolic motion gives the sector $ASP = \frac{a^2}{2}\sqrt{e^2-1}\,M$. For a rectangular hyperbola $e = \sqrt{2}$ which substituted in this gives $\frac{a^2}{2}M$, or (13). Hence it follows that the area described by SQ is equal to the area described in an equal time by the radius vector $S'Q''$ of a planet Q'' having the same mass and major axis as the planet P, but moving in an orbit which is a rectangular hyperbola.

THIRD CLEVELAND MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

As many readers of the MONTHLY may be unfamiliar with the history and the aims of the American Association for the Advancement of Science, the following data relating to these subjects may be of interest. In 1847 the Association of American Geologists and Naturalists agreed to resolve itself into the American Association for the Advancement of Science, and decided to hold the first meeting under the new management at Philadelphia in 1848.

At this first meeting of the Association its objects were stated to be as follows: "The objects of the Association are, by periodic and migratory meetings, to promote intercourse between those who are cultivating science in different parts of the United States, to give a stronger and more general impulse, and a more systematic direction to scientific research in our country, and to procure for the labors of scientific men increased facilities and a wider usefulness."

These objects have been modified only slightly during the sixty-four years since the Association was formed. For instance, the term United States has been replaced by the more general term America, and several of the meetings of the Association have been held in Canada. While most of the meetings have been in the east, the migrations have extended as far west as Denver and as far south as New Orleans. Four meetings have been held in each of the two cities Buffalo and Washington; and three in each of the four cities, Boston, New York, Philadelphia, and Cleveland. A few other cities have entertained the Association twice, but in most cases only a single visit to a given city has been made.

Similar organizations exist in many other countries. The British Association, organized in 1831, seems to occupy an especially prominent place in the scientific activity of that country and in the extent of its migrations. Its recent visits to South Africa and to Winnipeg, Canada, were marked with great liberality on

the part of the countries visited; and, according to *Nature*, the Commonwealth of Australia has already granted £15,000 to be handed to the British Association to cover the passages of not fewer than 150 British and foreign men of science, who will attend the meeting of the British Association in Australia in 1914.

While the American Association has thus far confined its migrations to much narrower limits than its prototype, it has already had under consideration meetings on the Pacific Coast as well as in the Hawaiian Islands, and with the growth of scientific activity, it also will doubtless further extend its sphere of influence, by direct contact, to other parts of the country. It has now a membership of more than 8,000 and most of the leaders of American science have been found on its register since its organization.

The scientific work of the Association is conducted by its eleven sections and by the affiliated national societies. About twenty-five of the latter met at Cleveland and their programs formed the most important feature of this meeting. Those which are of especial interest to mathematicians are as follows: The American Mathematical Society, including the Chicago Section; The Astronomical and Astrophysical Society of America; The American Physical Society; The American Federation of Teachers of the Mathematical and the Natural Sciences.

Section A of the Association is devoted to Mathematics and Astronomy. "As it is the policy of the Association to avoid competition with programs presented before special national societies," and as both of the subjects included in the scope of Section A were represented by national societies, this Section arranged for only one session, which was held on Tuesday afternoon, December 31, 1912. During this session the addresses of the retiring vice-presidents of Sections A and B were presented.

In the absence of the retiring vice-president and chairman of Section A, Professor E. B. FROST, Director of Yerkes Observatory, his address, entitled "The spectroscopic determination of stellar velocities, considered practically," was read by Professor J. A. PARKHURST. This address will be published in *Popular Astronomy*. The retiring vice-president and chairman of Section B Professor R. A. MILLIKAN, University of Chicago, presented an address entitled "On unitary theories in physics," which has appeared in *Science*.

In addition to these two addresses the following four papers were presented during the given session of Section A:

(1) Henri Poincaré as a mathematical physicist. By Professor A. G. WEBSTER, Clark University.

(2) Some general aspects of modern geometry. By Professor E. J. WILCZYNSKI, University of Chicago.

(3) Cosmical magnetic fields. By Dr. L. A. BAUER, Director of the Department of Terrestrial Magnetism, Carnegie Institution of Washington.

(4) Preliminary note on an attempt to detect the general magnetic field of the sun. By G. E. HALE, Director of Mt. Wilson Observatory.

In the absence of Professor Hale his paper was presented by Dr. BAUER.

The others were presented by their respective authors. The programs of the affiliated societies were, in general, very much more extensive than those of the Sections. For instance, the program of the American Mathematical Society contained fifty-four titles and the American Physical Society had an almost equally extensive list.

While such meetings afford excellent apportunities to learn important facts which have just been discovered, they serve also to inspire one to renewed efforts, and to extend and deepen friendships between those who are working along various scientific lines. The latter desirable ends are greatly promoted by numerous dinners and smokers as well as by the fact that a large number of those who attend select the same hotel.

The weekly journal called *Science* is the official organ of the Association and the reader is referred to its columns for reports of the meetings of all sections. In some cases, more technical details, as regards the scientific results, may be found in the journals published by the various scientific societies which meet in affiliation with the Association. The next meeting of the Association is to be held at Atlanta, Georgia, under the presidency of Professor E. B. WILSON, Columbia University. Director Frank Schlesinger, Allegheny Observatory, and Professor F. R. Moulton, University of Chicago, were elected chairman and secretary respectively, of Section A. The term of the former office is only one year while that of the latter is five years.

G. A. MILLER,
Retiring Secretary of Section A.

MAXIMUM PARCELS UNDER THE NEW PARCEL POST LAW.

The size of a parcel that can be mailed under the rules of the Parcel Post Law is limited in three ways. It must be not more than three feet and six inches in length. It must not weigh more than eleven pounds. The sum of its length and girth must not exceed six feet. The girth is measured around a cross section perpendicular to the length; and since the greatest girth is the one measured, all such cross sections should be equal to the largest of them if it is desired that the volume be a maximum. Furthermore, since the circle has a larger area for a given perimeter than any other closed curve, the parcel should be in the form of a right circular cylinder if the volume is to be a maximum. Let R denote the radius of the base of the cylinder, V its volume and x its altitude or length. Then $V = \pi R^2 x$, and $2\pi R + x = 6$. From these two equations it is easily found by differential calculus that for a maximum value of V the length must be two feet and the girth four feet. The maximum value of V is 2.546 cubic feet. This is the largest mailable volume.

If the parcel to be mailed has its cross sections all equal and of a specified shape which is not circular, it is still true that the length should be two feet and